MAIL STOP AF
PATENT
0624-1008

IN THE U. S. PATENT AND TRADEMARK OFFICE

In re application of

Raymond GUYOMARC'H Conf. 2740

Application No. 10/528,024 Group 3744

Filed: March 16, 2005 Examiner Azim RAHIM

Title: REGULATING HEAT EXCHANGE AND COOLING METHOD AND SYSTEM FOR MONITORING AND CONTROLLING THE TEMPERATURES OF WALLS SUBJECTED TO HIGH TEMPERATURES

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Sir:

Applicant requests a pre-appeal brief review of the final rejection in the above-identified application. No amendments are being filed with this request.

A Notice of Appeal is filed herewith. A two month extension is being filed.

The review is requested for the reasons advanced on the attached sheets.

Respectfully submitted,

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REASONS IN SUPPORT OF REQUEST FOR REVIEW

A pre-appeal brief review is respectfully requested as the pending rejections include both clear factual error and clear legal error.

Applicant requests review of the rejection of claims 1 and 3-19 under section 103 over ARTHUR 5,115,184 in view of HEGGART 4,813,055.

The invention is a system and method for cooling an inner wall of a thermal system comprising a double wall, and includes i) a water spraying zone located between the respective inner and outer walls and maintained at a negative pressure, and ii) a system configured for maintaining the negative pressure within the water spraying zone, the negative pressure maintained for an evaporation of the sprayed cooling water. Neither applied reference teaches these recited features.

The Examiner acknowledges (Official Action, page 4, last paragraph) that ARTHUR does not teach the features of:

- a system configured for maintaining negative pressure within a water spraying zone delimited by the respective inner and outer walls (claim 1);

- wherein the negative pressure is maintained for an evaporation of the sprayed cooling water at a low temperature (claim 1); and

- the system for maintaining the negative pressure with the water spraying zone (6) comprising a steam-

extraction system (10) that extracts steam produced within the water spraying zone (claims 8-9, 14-15).

HEGGART is offered for the remaining missing features; however, HEGGART does not disclose the recited features.

The HEGGART Abstract discloses a spray cooling system for cooling a furnace with spray headers and pipes that supply coolant to spray nozzles distributed within a coolant space in a roof structure) to spray coolant against the working plates of the roof. A pump is connected to evacuate the coolant from the coolant space. A substantial portion of the sprayed droplets are vaporized during cooling whereby the latent heat of vaporization of the coolant is utilized to provide a significantly increased cooling rate.

The pump is illustrated in Figure 15.

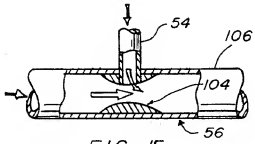

FIG 15

The Examiner correctly identifies column 7, beginning at line 36 as being relevant to the pump and condensation extraction. The pump means 56 comprises a venturi 104 in pipe 106, which pipe conveys waste water away

from another area of the furnace. The outlet pipes 54 lead to the venturi, whereby when water is flowing through pipe 106, a low pressure is created in pipe 54, evacuating coolant from the coolant space.

The coolant water sprayed from the nozzles 40 forms small droplets, which provide a very large surface area to enhance cooling. Evacuation of the water from the coolant space insures against the build-up of liquid coolant in the coolant space, and maintains a low pressure.

HEGGART claim 1 mentions the pump removing fluid coolant to prevent undesired buildup of pressure. See also claim 4. See that claims 2, 5 expressly state that the fluid coolant is sprayed with a volume and pressure to maintain the water in the form of small droplets.

Column 3, lines 56-59 disclose the HEGGART system as being under pressure, albeit a lower pressure than the prior art systems, i.e., "Moreover, the system of the invention is only under sufficient pressure to effect a spray, and access to the cooling space or plates is convenient, enabling easy cleaning or repair when necessary." See also column 4, lines 1-3.

In summary, HEGGART teaches a system at a lower pressure than the prior art high pressure systems, and a venturi that creates a local low pressure to evacuate coolant from the coolant space. The Examiner is factually in error in that HEGGART does not teach a system configured

for maintaining the negative pressure within the water spraying zone delimited by said respective inner and outer walls. HEGGERT's low pressure is not a negative pressure.

The Examiner is also in legal error stating that this limitation is not structural but only intended use.

The Examiner is also factually in error in that HEGGART does not teach the negative pressure maintained for an evaporation of the sprayed cooling water at a low temperature.

Rather, HEGGART teaches providing small droplets to provide a large surface area to enhance cooling (column 7, lines 42-44). HEGGART recognizes that "in the event that the droplets of cooling water do flash to steam, there is no danger of over-pressurization and explosion." HEGGART teaches that the evacuation of the water from the coolant space maintains a safe low pressure condition. HEGGART clearly make no teaching to encourage the evaporation of the sprayed coolant.

The Examiner is factually in error in that HEGGART does not teach a steam-extraction system (10) that extracts steam produced within the water spraying zone (claims 8-9, 14-15). HEGGART extracts coolant not steam.

Claim 8 requires "the system for maintaining the negative pressure with the water spraying zone (6) comprises a steam-extraction system (10) that extracts steam produced within the water spraying zone". This is not disclosed.

Claim 9 requires "the steam-extracting system (10) is comprised of a compressor to compress said extracted steam and inject the compressed steam into a dedicated exchanger unit so that said compressed steam acquires a temperature and a pressure suitable for power co-generation". The Examiner states that pump 56 is a compressor. Pump 56 is not a compressor. HEGGART also does not teach the compressed steam acquiring a temperature and pressure suitable for power co-generation.

Claim 14 further requires "the system for maintaining the negative pressure within the water spraying zone (6) comprises a steam-extraction system (10) located in a vertically uppermost part of the water spraying zone and extracts steam from the upper part of the water spraying zone,". The Examiner errors in asserting that pump 56 i) is in an uppermost part of the water spraying zone and ii) extracts steam from the upper part of the spraying zone.

Conclusion

As the Examiner has made this many factual and legal errors, the rejection fails.

In view of this, applicant respectfully requests that this pre-appeal brief review recognize these errors and direct that the pending rejections be withdrawn.